**Background**

Extended-spectrum β-Lactamase Producing Enterobacteriaceae (ESBL-PE) community and healthcare-associated infections (HCAI) have emerged in the last years. Also, inappropriate empirical therapy and recurrent ESBL-PE infections (ESBL-PEI) are occurring more often. We aim to assess antibiotic ESBL-PE sensibilities and to identify risk factors for recurrence.

**Methods**

- Retrospective data analysis of symptomatic children (< 18 years old) with a positive ESBL-PE strain, from usually sterile sites in an emergency department
- Tertiary care pediatric hospital in Portugal
- 2013 to 2016 (4 years).

Inclusion criteria for urine samples according to AAP, NICE and Hooton et al.:

- Symptomatic children
- Suggestive urine analysis
- Catheterization, ureterostomy or clean-catch midstream
- More than 10<sup>5</sup> CFU/mL of a single pathogen

HCAI were categorized by Friedman et al. (2002) proposed criteria.

ESBL-PE recurrent/isolated infections groups were compared for risk factors.

Data analysis by SPSS Statistics v22. P<0.05 was considered statistically significant.

**Results**

**Population characterization**

- 65 ESBL isolates were obtained
- 42 included (41 urines, 1 blood sample) from 41 ESBL-PE infections of 28 patients.
- Median age: 3 years (1 month – 17 years).
- No variation on incidence during the study.

**Infection characteristics**

- ESBL-PEI was the most frequent pathogen (67%). K. pneumoniae was isolated in 33.3%.

- **Empiric therapy:**
  - Inappropriate in 73% (26 episodes).
  - 12/26 episodes (46%) improved with an inappropriate AB (but 2 had a recurrence in the following 30 days).

**Risk factors for recurrence**

- **Antibiotic exposure**
  - last 12m: 36 (87) 0.129
  - last 3m: 28 (68) **0.009**
  - last 30 days: 24 (58) **0.001**

- **Previous ESBL (<12 months)**
  - 24 (41) 0.151

- **Hospitalization < 3 months**
  - 18 (44) **0.001**

- **Intermittent catheterization (CIC)**
  - 7 (25) **0.001**

- **On logistic regression analysis, CIC was identified as an independent risk factor** (p 0.029)

- **Recurrent ESBL-PEI group: more than one antibiotic cycle** (median 4) in the preceding 12 months (p 0.017 Mann-Whitney).

  - The initial antibiotic therapy and recurrence in the following 30 days (5 cases) had no statistical significance (p 0.412)

**Conclusions**

CIC, hospitalization and antibiotherapy in the last 3 months should be considered risk factors for recurrent ESBL-PEI.

Empiric treatment protocols should be developed for these groups.

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**Citations**